

*2/10/08*

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/018,517	LIU ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	James S. Wozniak	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--  
 All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the after final amendment filed on 1/28/2008.
2. ☒ The allowed claim(s) is/are 1,2,4-8,10-14 and 16-18.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application                                 |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance              |
|  | 9. <input type="checkbox"/> Other _____.  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. In response to the office action from 11/26/2007, the applicants have submitted an amendment after final, filed 1/28/2008, arguing to traverse the art rejection based on the differences between the applicants' subsuming relationship between paragraphs and the prior art "bushiness" relationship between paragraphs (*Amendment, Pages 10-15*). Applicant's arguments have been fully considered and claims 1-2, 4-8, 10-14, and 16-18 are allowable over the prior art for the reasons given below and with regards to the examiner's amendment.

2. In response to the applicants' removal of propagated signals from the specification (*Amendment, Page 9*), the examiner has withdrawn the previous 35 U.S.C. 101 rejection since the scope of the claimed computer-readable medium no longer includes non-tangible mediums.

### **EXAMINER'S AMENDMENT**

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mark Van Ness (*Reg. No. 39,865*) on 2/11/2008.

4. The application has been amended as follows:

Amend Claim 1 as follows:

1. (Currently amended) A computer-implemented method comprising:

parsing a plurality of paragraphs in a plurality of computer documents stored on a computer-readable medium, each document with one or more of the paragraphs; selecting paragraphs from the documents through a subsuming relation calculation including,

creating a link from terms in each paragraph to identical terms in substantially all of the other paragraphs, wherein terms include noun phrases, verb phrases or entity names,

counting for each paragraph the number of links from the terms in the paragraph to the terms in other paragraphs,

denoting for each paragraph the number of links counted for that paragraph as the significant score of that paragraph,

ranking the paragraphs by the significant score,

selecting paragraphs based on the ranking, wherein paragraphs in the ranking that subsume the highest number of other paragraphs are selected prior to other paragraphs in the ranking, and wherein a first paragraph subsumes a second

paragraph if all noun phrases, verb phrases, and entity names contained in the second paragraph are also contained in the first paragraph;

aggregating the selected paragraphs into a summary and  
outputting the summary.

Amend claim 7 as follows:

7. (Currently amended) A computer-readable medium having stored thereon sequences of instructions which are executable by a processor, and which, when executed by the processor, cause the processor to perform operations comprising:

parsing a plurality of paragraphs in a plurality of computer documents, each document with one or more of the paragraphs;

selecting paragraphs from the documents through a subsuming relation calculation including,

creating a link from terms in each paragraph to identical terms in substantially all of the other paragraphs, wherein terms include noun phrases, verb phrases or entity names,

counting for each paragraph the number of links from the terms in the paragraph to the terms in other paragraphs,

denoting for each paragraph the number of links counted for that paragraph as the significant score of that paragraph,

ranking the paragraphs by the significant score,

selecting paragraphs based on the ranking, wherein paragraphs in the ranking that subsume the highest number of other paragraphs are selected prior to other paragraphs in the ranking, and wherein a first paragraph subsumes a second paragraph if all noun phrases, verb phrases, and entity names contained in the second paragraph are also contained in the first paragraph;  
aggregating the selected paragraphs into a ~~summary~~ summary; and  
outputting the summary.

Amend claim 13 as follows:

13. (Currently amended) A system comprising:

a processor;

a bus coupled to the processor; and

a unit coupled to the bus to:

parse a plurality of paragraphs in a plurality of computer documents, each document including one or more of the paragraphs,

select paragraphs from the documents through a subsuming relation calculation including:

creating a link from terms in each paragraph to identical terms in

substantially all of the other paragraphs, wherein terms include noun phrases, verb phrases or entity names,

counting for each paragraph the number of links from the terms in the paragraph to the terms in other paragraphs,

denoting for each paragraph the number of links counted for that paragraph as the significant score of that paragraph, ranking the paragraphs by the significant score, selecting paragraphs based on the ranking, wherein paragraphs in the ranking that subsume the highest number of other paragraphs are selected prior to other paragraphs in the ranking, and wherein a first paragraph subsumes a second paragraph if all noun phrases, verb phrases, and entity names contained in the second paragraph are also contained in the first paragraph; aggregate the selected paragraphs into a summary; and outputting the summary.

Cancel claims 19-21.

*Allowable Subject Matter*

5. **Claims 1-2, 4-8, 10-14, and 16-18** are allowable over the prior art of record.
6. The following is an examiner's statement of reasons for allowance:  
  
With respect to **Claims 1, 7, and 13**, the prior art of record fails to explicitly teach or fairly suggest, either individually or in combination, a method, computer readable medium storing a program, and system for producing a text summary from a group of documents by

selecting paragraphs having a subsuming relationship according to the processes of claims 1, 7, and 13, wherein the selected paragraphs of the various documents having a subsuming relationship refers to a first paragraph and second paragraph each having *all* noun phrases, verb phrases, and entity names of the other paragraph (*see Amendment, Pages 13-14 and Page 5 of the specification*).

Pertinent prior art:

McKeown et al ("*Towards Multidocument Summarization by Reformulation: Progress and Prospects*," 1999) evidences that multi-document summarization is well-known in the text/language processing art. More specifically, McKeown teaches generating a multi-document summary by comparing matching or linking terms found in document paragraphs (*Pages 455-456*), determining a score for the matching linguistic units (*Page 456*), and selecting the most important phrases based on the score to generate the summary (*Page 457*). Thus, multi-document summarization and comparing links between paragraphs for generating a score for use in determining a summary is well known in the art. McKeown, however, does not base her paragraph score/selection on a subsumption relationship wherein *all* noun phrases, verb phrases, and entity names of a summary paragraph must be contained in a highest number of other document paragraphs. McKeown also fails to teach aggregation of selected paragraphs to generate a summary, as her method involves selection of commonly occurring phrases to generate a summary paragraph. Thus, McKeown fails to teach the applicants' invention recited in claims 1, 7, and 13.

The Salton et al ("*Automatic Text Structuring and Summarization*," 1997) reference overcomes some deficiencies of McKeown by teaching aggregation of paragraphs for a summary

based on a measure known as "bushiness" (Page 198). This similarity measure counts the number of links between paragraph based on matching words, but as pointed out by the applicant (Amendment, Pages 13-14), scoring/selection of paragraphs for summary based on "bushiness" is not a subsuming relationship that includes all of the noun phrases, verb phrases, and entity names of other paragraphs. Thus, the metric used by Salton and the claimed invention for aggregating paragraphs for a summary are different and Salton fails to teach the applicants' invention recited in claims 1, 7, and 13.

The remainder of the dependent claims contain subject matter further limiting independent claims containing allowable subject matter, and thus, are also allowable over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached at (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James S. Wozniak  
2/12/2008

  
PATRICK N. EDOUARD  
SUPERVISORY PATENT EXAMINER